PROCEDURE FOR THE VERIFICATION OF MECHANICAL MIXERS ASTM C 305

A. PURPOSE

The purpose of this procedure shall be to verify the operation (speed) and clearance between the paddle and mixing bowl. This verification is made annually (see note). ASTM requires a calibration every 30 months.

B. APPARATUS REQUIRED

1. Calibrated tachometer.
2. Calibrated caliper.
3. Steel ruler.
4. Stop watch.
5. Thickness feeler gauge set.

C. PROCEDURE

SPEED OF MIXER

1. Examine the bowl and paddle for dents, scrapes and nicks that could impair the operation of the mixer.
2. Place a piece of tape on the paddle and position the tachometer so that it has access to the tape at all times. (May require adjustment before starting test.)
3. Position the mixer paddle so that the tape is just past the range of the tachometer and zero the tachometer.
4. Set mixer at low speed. Start the mixer and the stop watch at same time.
5. Allow the mixer to operate 3-5 minutes. Record the time and the tachometer reading. Find the average RPM.
6. Switch the mixer to high speed and repeat Steps 3, 4, and 5.

CLEARANCE BETWEEN PADDLE AND BOWL

1. Attach the bowl and the paddle to the mixer.
2. Unplug the power cord from the power outlet.
3. With the appropriate feeler thickness gauge, measure the clearance between the paddle (both sides) and the mixing bowl.
4. Record these measurements.
5. Adjust if necessary.

PADDLE DIMENSIONS

1. With the steel ruler and caliper, verify the dimensions of the paddles as shown in Figure 2 of ASTM C 305.
2. Record these dimensions.

D. TOLERANCE

All tolerances are as recorded in ASTM C 305.

Note: CCRL inspection shall be the verification of record.

EQUIPMENT VERIFICATION RECORD

Verified By: _____ Date: _____

Equipment: Mechanical Mixers Location (Lab): _____

Identification No.: _____ Verification Frequency: 12 months

Previous Verification Date: _____ Next Due Date: _____

Verification Equipment Used: Calibrated tachometer, SN: _____ Calibrated calipers, SN: _____

Steel ruler, SN: _____ Stop watch, SN: _____ Feeler gauge set, SN: _____

Verification Procedure: (In-house) OMR-CVP-46 / ASTM C 305

Speed of Mixer	Begin Tachometer	End Tachometer	Time	Speed
1 – Paddle speed (slow 135 – 145 r/min.)				
3 – Paddle speed (fast 275 – 295 r/min.)				
2 – Planetary motion speed (slow approx. 62 r/min.)				
4 – Planetary motion speed (fast approx. 125 r/min.)				

To determine speed – subtract begin tachometer from end tachometer, then divide this time in minutes.

Clearance

Paddle and bottom of bowl 0.8 – 2.5 mm (0.0315 – 0.0984 in.) ..... _____

Paddle and side of bowl 0.8 – 4.0 mm (0.0315 – 0.1575 in.) ..... _____

EQUIPMENT VERIFICATION RECORD

Verified By: _____ Date: _____

Equipment: Mechanical Mixer Paddles Location (Lab): _____

Identification No.: _____ Verification Frequency: 12 months

Previous Verification Date: _____ Next Due Date: _____

Verification Equipment Used: Steel ruler, SN: _____ Calibrated calipers, SN: _____

Verification Procedure: (In-house) OMR-CVP-46 / ASTM C 305

See Figures 2 and 3 in ASTM C 305.

Measurements

A _____	G _____	M _____	S _____
B _____	H _____	N _____	T _____
C _____	I _____	O _____	U _____
D _____	J _____	P _____	V _____
E _____	K _____	Q _____	_____
F _____	L _____	R _____	_____